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Should Truck Movement of Citrus Be Encouraged or Discouraged?

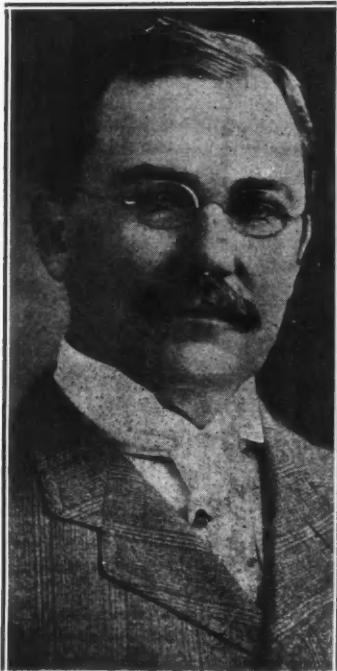
By R. P. Burton, at Meeting Florida State Horticultural Society

One of the most serious problems confronting Florida today is the transportation of citrus fruits from the state. Trucking is no less serious in many other states.

Prior to three years ago, it was common to see in citrus Florida great piles of fruit dumped from the packing house; fruit that was unfit for shipment, or fruit that could not be put in containers and sold in the markets for enough to cover the expense.

These cull piles were subjects of comment by visitors, who thought it a great waste. A few trucks owned by home people began to take this low grade fruit, which was unsuited for market and which could not be handled profitably, trucking it to upper Florida and southern Georgia, peddling it to small retailers and commissaries in sawmill camps.

In the season of 1930-31, Florida had a very large crop of citrus fruit, a very large percentage of which was very small, which could not be put in containers and shipped to market profitably. Trucks began to flock in from all parts of the country to buy this fruit at low prices and soon put the wholesale fruit and produce dealers out of the Florida citrus fruit



R. P. Burton

business.

Many of these trucks were not interested in the profit to be made in merchandising this fruit, but were

interested in its transportation. In some instances they were satisfied if they got the cost of the fruit back and pay for transportation out of the added prices on delivery.

This procedure soon affected all of the markets in the Cotton States and even beyond. It brought about a low level of prices and educated the public to Florida citrus fruits at a price that was destructive to the industry. The public will buy any commodity which they use as cheaply as they can and when a low level of prices is established, it is impossible to raise it otherwise than by discontinuing the supply.

When these trucks could not sell to the wholesale people, who had already supplied their needs from other trucks, they would go to the retailers and from them to the so-called "curb markets", where the fruit was peddled along with other farm products of every character, from greens to fence posts. That was lots of fun for the people who could buy our oranges and tangerines at \$.75 to \$1.25 per bushel and our grapefruit at from \$.50 to \$.75 per bushel. In practically every city south of the Mason-Dixon Line can be seen these "curb markets", where our citrus fruits can be bought from these truck peddlers, at prices that make the

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The Agricultural Work Centered at the U. of F.

(By Wilmon Newell

It has been twenty-four years since this Society held its meeting in Gainesville. During that time many interesting developments—and some sad ones—have taken place in Florida.

During the same period also there have been striking developments here in the University. While the campus has been enlarged and many buildings added, the developments and growth within these walls have been even more striking and significant.

What you, as horticulturists, are perhaps most interested in are those activities, centered here, which have as their sole purpose the rendering of service to you and your industries, and perhaps this is a propitious time to place before you a brief picture of what these activities are and what they accomplish.

These activities are of three types—educational, constructive and protective.

The educations, again, are of two types—education of the students who come here to master the sciences which are basic to agriculture, and educational help for the rural farm population of the state.

The former is handled by the resident Teaching Division of our College of Agriculture and the latter by the Extension Service of the College.

The Extension Service is best known to you through the work of the County Agents and County Home Demonstration Agents. They are teachers, teaching by lectures, by conferences, by literature and by demonstrations, helping the citizens of the state to apply in a practical way the new information constantly being brought to light by the Experiment Station and making available the vast storehouses of information in the College of Agriculture and the United States Department of Agriculture.

But agriculture is a progressive, growing thing; what was good yesterday is antiquated and insufficient today. The new problem or difficulty of today must have a solution tomorrow. Unless we are to stand still—and standing still means going backwards—we must ever be searching for new agricultural knowledge, seek-

This is the first of a series of articles dealing with the Agricultural Work Centered at the University of Florida. Other papers in the series, which were read at the recent meeting of the Florida State Horticultural Society, will be printed in succeeding issues of *The Citrus Industry*.

ing it systematically and methodically and with the certain assurance of finding it. Therefore, we have the Experiment Station, the fountain of new agricultural knowledge and the constructive agency in creating new values.

In a state like Florida, with its subtropical conditions, a state almost surrounded by islands and countries harboring dangerous pests and plant disease, it is not merely sufficient to build and to educate. The agricultural industries, established by the application of scientific knowledge and the hard work of our citizens, must be protected—protected by plant quarantines and by eradication activities when perchance a dangerous enemy succeeds in crashing the gates.

It is a pleasure to say to you that all of these activities, for the eleven years past, have been conducted in close cooperation with each other, separate yet efficient, and without duplication of effort and with the minimum of expense.

The next five speakers will place before you some of the essential activities in each of these three fields—educational, constructive and protective—and endeavor thereby to give you a comprehensive picture of the agricultural activities centered here and in which you are vitally interested.

The Agricultural College U. of F. Teaching Division

By W. L. Floyd

In 1870 the Florida Agricultural College was provided for by the State legislature to take advantage of the Morrill Act of Congress granting public funds for providing colleges for the benefit of Agriculture and Mechanic Arts. After delays and efforts to establish the College in different places it was finally located at

Lake City and opened for students in 1884. It was operated under the name Florida Agricultural College till 1903 when the name was changed by the State legislature to University of Florida. In 1905 it, along with the five other institutions of higher learning, was abolished by the Buckman Act. Its physical equipment and records became a part of the newly created University of Florida located in Gainesville.

The College was organized as one of the distinct college units of the University in 1910. It is usual in discussing enrollment, degrees conferred and other accomplishments to start from this date as the records are incomplete back of that and the accomplishments along agricultural lines rather meager.

Since 1910, the degree B. S. A. has been conferred on 258, that of M. S. A. on 27 men and agricultural training given to about 40 others on whom the degree B.S. in Agricultural Education has been conferred by the College of Education.

The teaching staff consists of twenty instructors, seven graduate assistants, a farm foremen, and a herdsman.

These are divided into eleven departments each headed by a man holding either a Doctor's or a Master's degree. Research work such as time permits, on problems of practical interest, is carried on in addition to the main work of teaching.

A farm of 145 acres is operated primarily for instruction purposes. It is equipped with a foreman's house, general barn for work stock, modern dairy barn, silos, beef cattle barn, veterinary hospital, potato storage house, corn crib, fertilizer house, houses, stock lots and sheds and a machinery shed, greenhouses, poultry number of types and breeds of farm animals. The larger Experiment Station farms is also available for observation and special studies.

An important feature of the curriculum is that a student not later than the beginning of his junior year decides in what department he will major. The head of that department then becomes his adviser, helping him determine what options and electives he should take to become best trained for his life objectives.

(Continued on page 26.)

New Citrus Hybrids

(Continued from last month)

Umatilla Tangelo

(C. P. B. 52031—B—2; pl. 8)

Closely resembling some of the tangelos in general appearance are certain of the tangors, i. e., hybrids between mandarin oranges (*Citrus nobilis*) and the common sweet orange (*C. sinensis*). The resemblance is so close that for horticultural purposes these tangors may well be discussed with the tangelo group, a class of fruits now fairly well recognized by citrus growers and rapidly acquiring market recognition.

Of special interest and promise is a fruit resulting from the pollination of a Satsuma orange with pollen of the Ruby orange (sometimes called Ruby Blood). This cross was made in the spring of 1911 at Eustis, Fla. Hybrids of this group have been fruiting for several years at Eustis, and one has attracted special attention because of its large, deep-colored, glossy fruit of attractive appearance and good holding quality. In contrast with the parents (the Satsuma, early maturing, and Ruby, midseason), this hybrid is decidedly a late fruit, maturing in late February, March, and April, about the season of the King orange. It resembles the latter in shape and size, although it is much more attractive in appearance. The tree so strongly resembles the ordinary Satsuma in foliage and habit that but for the unique character of the fruit doubt might be raised as to its hybrid origin. The name Umatilla (Um-a-til-la) has been selected for this new fruit, after the town of that name in Lake County, Fla. For horticultural convenience it is classed with tangelos.

Technical description.—Fruit the size and shape of a large Satsuma or King orange, flattened at base and apex but without depression, size $3\frac{1}{4}$ to $4\frac{1}{4}$ inches in transverse diameter by $2\frac{1}{2}$ to $2\frac{3}{4}$ inches high; calyx small, persistent, shallow grooves radiating from calyx attachment; color reddish orange (Ridgway, orange chrome), rind of medium thickness (one-eighth to three-sixteenths inch), firm, somewhat free peeling though not of pronounced kid-glove character; smooth and glossy despite slight indentations due to small, depressed oil cells; segments usually 10, separating easily, with thin segment walls; open core with slight quantity

of fibrous tissue or rag; pulp tender and melting, translucent, very juicy flavor rich and vinous with a blending of high acidity and sweetness somewhat resembling the King orange, pleasant aroma, large vesicles, color of pulp resembling orange (Ridgway, mikado orange); seeds variable but averaging one to a segment (some fruits entirely seedless), large and plump, greenish in cross section, like Satsuma. Tree of rather slow growth and spreading, with open top like Satsuma, fairly productive; leaves long-pointed oval, strongly veined, dark green, thick and leathery, with practically wingless petioles, resembling Satsuma.

A sister hybrid (C. P. B. 52031—C—2) closely resembles the Umatilla tangelo in fruit and tree characters, but its fruit is usually too acid for consumption until about a month after the Umatilla becomes palatable. Neither fruit shows any indication of drying out after reaching maturity, although the rind is very thin.

Until given further tests on different stocks for growth, vigor, and productivity, the Umatilla tangelo is not recommended for large-scale planting; but it is well worthy of a place in the home fruit garden and in plantings designed to supply luxury fruits to a private trade.

Hybrids Serving as Substitutes For Limes and Lemons

The need for hardy and disease-resistant "ade" fruits similar to the lime and the lemon has led to making numerous crosses in which common varieties of both lime and lemon have been utilized in combination with hardy and disease-resistant citrus varieties and species.

One group of these hybrids, the limequat, has been discussed in a previous paper, in which three varieties—the Eustis, Lakeland, and Tavares—were described in detail (9). In producing these hybrids the common West Indian lime (*Citrus aurantiifolia*) was pollinated with pollen from two species of the kumquat (*Fortunella margarita* and *F. Japonica*).

Since the publication of the paper mentioned above, the Eustis limequat has been propagated and planted in home fruit gardens in Florida and in other Gulf States and has fulfilled all expectations as to hardiness and disease resistance. The limequats are to all practical purposes hardy limes, but with the added advantage that the hybrid has proved immune to

lime withertip, a specific lime disease caused by a parasitic fungus (*Gloeosporium limetticolum Clausen*) (2) to which the pollen parent (*Fortunella japonica*) is immune. The severity of this disease, especially in humid regions and in seasons of high rainfall, seriously reduces the vigor of the trees and causes great crop losses, so that an immune variety having much the same flavor has distinct economic promise.

The relative vitamin value of the hybrid as compared with the common lime is likewise a matter of importance and is now being investigated. The lime, as is now well known, has the lowest vitamin value of any citrus fruit, notwithstanding its tradition use on old sailing vessels as a preventive of scurvy. The so-called "lime juice" served as a ration to the crews of vessels on long cruises was not, however, the juice of the West Indian lime, but a mixture of lemon juice and juice of the so-called sweet lime. So much a part of the regimen was the serving of this juice on British vessels that they earned the sobriquet of "lime juiceers". The substitution of juice from the West Indian variety of lime under the mistaken notion that it was identical in its properties with the juice of Mediterranean limes and lemons led to several deaths from scurvy, seriously handicapping an important expedition to the Arctic regions—the Nares expedition of 1875—76 (1).

The limequat has evinced an adaptability to a wider range of conditions than the true lime, not only thriving in regions much too cold for the common lime, but proving well adapted to growth in such widely divergent climates as the hot desert valleys of southeastern California and the humid tropical lowlands of Honduras and Panama. Although the limequat proved sufficiently hardy to overwinter for a number of normal years in northern Florida and the other Gulf States, the severe freeze of 1924 practically killed out the limequats planted in this territory, indicating the need for a still hardier "ade" fruit for this and similar marginal citrus zones.

(Continued next month)

"Why do you always slow up at railroad crossings?"

"Aw, you can never tell what those crazy engineers will do." —Green Goat.

Culture of Pineapple Oranges in the High Pine Lands

F. M. O'Byrne, Lake Wales, Fla., at Meeting Florida State Horticultural Society

The Pineapple Orange originated on heavy soil near Sparr, Fla. It was first propagated by the Bishop-Hoyt Fruit Company, H. B. Stevens manager, of Citra. This grove is now owned by Messrs. Crosby and Wartman of Citra.

For many years practically all Pineapples were budded into sour orange seedlings and were planted on hammock soils or the heavier pine soils. They produced a fine orange of vigorous habit, deep orange color and splendid eating quality with a peculiar and characteristic aroma.

Early in the present century some ambitious persons began to develop extensive grove holdings in the very thin High Pine Lands of Polk, Lake and what is now Highlands Counties. It was found that trees budded into sour orange made a very slow growth in these very light thin soils. Other stocks were tried and rough lemon was selected as the one best suited to very light soil.

About 1912 extensive citrus plantings were started in some of the lightest portion of the high pine lands, all on rough lemon stock. Many of these groves contained a block of pineapple oranges.

When these trees came into bearing it was found that the pineapple oranges they produced differed considerably from the citra pineapple. The oranges were not as smooth in texture or as thin of skin as the citra pineapple. The color was not as deep nor was the fruit as tart. Pineapples on rough lemon stock will mature earlier than those on sour orange.

But the greatest difference noted was in habit and vigor of growth. The pineapple on sour orange root in heavy soil is a vigorous grower. On rough lemon root it has a tendency to grow up and it lacks vigor. It tends to over bear, to grow hard and frenched and to lose much wood from withertip. During periods of drouth it is apt to suffer severely often half of the top dieing back and having to be cut out.

One trouble is that the grower of Pineapple Oranges in the sand hill sections wants to get his crop off early before his brother grower on sour orange stock starts to ship. In other words, the pineapple grower in the sand hills tries to crowd into the Parson Brown and Hamlin orange season.

Pineapple organes in the sand hills, to be kept in good vigorous condition, should receive an application of fertilizer in August. But this will keep them growing and seriously delay maturity. Some growers follow the practice instead of waiting till the fruit will pass the maturity test, then apply an application of nitrate of soda and then pick the fruit about a week later before the nitrate has a chance to put the fruit back where it will not pass the test. Should a good rain fall after the soda was applied and before a grower could pick the crop, the fat would be in the fire. He would market his pineapples after December first.

Some growers apply the soda the day the crop is picked. This is not soon enough. Pineapples particularly go back badly after the crop is picked. If it happens to be quite dry at this season and the grove has no irrigation system, half of the top may die with plenty of food on the soil simply waiting for a rain.

Some growers say they prefer to have their trees rather than good prices for what few pineapples they can raise so they apply an extra application to their pineapples in August and make no effort to ship the fruit till time for the Christmas trade.

The pineapple orange loves organic fertilizer, whether it comes in the fertilizer bag, is applied as manure or as a cover crop or hay mulch hauled in from the outside.

The writer favors the practice of applying organic fertilizers in considerable quantites to pineapple oranges in the fall by turning in a heavy cover crop or hauling in a mulch or stable manure. Castor pomace or similar organic applied under the branches is excellent.

A good generous application of fertilizer should be given in November, February and again in May. If this is done the pineapples will generally carry through to maturity

without a supplemental application. If the trees show signs of going back during August, pay attention to the danger signal; for it is better to delay the maturity of one crop than lose half of your bearing surface from withertip.

One other point of importance—irrigate, or water pineapple trees during a drought as soon as they show they are needing water. If you neglect them too long withertip will set in and then it is hard to stop. One should not figure on what he will save alone in the way of fruit, but also on what he will save in a pruning bill and loss of bearing surface if he will properly water his pineapples during a drought.

Some growers disheartened by their troubles with pineapple oranges in the sand hills have decided to top work their trees. This I think is a mistake. One could hardly work them over to another orange because of the impossibility of telling what sprouts come from buds and what ones from the pineapple stock. This leaves you only grapefruit, tangerines or temples to consider for the new top.

Nothing in recent years would encourage one to select tangerines for the new top. With large plantings of grapefruit in Texas, one should hesitate to consider grapefruit for a while at least. While the temple has done famously in the sand hills the last two years, we can not be absolutely certain that we have learned how to handle it. Weather conditions may have played a greater part than our feeble efforts. I think it too soon to hail the temple orange as an unqualified success on rough lemon stock.

As a matter of fact, with all its draw backs, the pineapple orange has made the writer more money in recent years than any other variety except valencias which have been the best variety in our section. My advice to the grower who is thinking about top working his pineapples is "Don't do it". Baby them along a little, watch them during mid-summer and during drouths. Feed them a little extra when they are hungry or hard and they will bear you more fruit than any other orange and will produce nearly as high a per acre return as any variety you can grow.

IMPRESSIONS

By the Impressionist

It was a startling lesson in chemistry that recently came to Nathan Mayo, w.k. commissioner of agriculture. Driving along to keep a speaking engagement at a farmers' gathering he bethought himself to get some chlorate of potash tablets for a sore throat. Stopping at the next drug store he purchased them and dropped them loose into a coat pocket. A little further down the road he discovered suddenly that this pocket and that side of his coat were in flames. Vigorous action put the fire out; and then he found that he had dropped the chlorate of potash tablets into a pocket which had already contained a couple of dozen loose matches.

Down in the vicinity of that famous railroad station, "Dr. P. Phillips, Florida," Howard Phillips recently went in for raising lady bugs upon a large scale, and found it very interesting. However, when it came to transporting colonies to other locations even within one-half mile of where they were raised what the insurance actuaries call the "mortality rate" was tremendous.

Kelly Tresher, pappa of the St. Johns River Line, pauses to ask if we will not join in a protest against the proposed discontinuation of beacon service upon the St. Johns River. Gladly enough. Those beacons have burned for many years, and without them night navigation of the river is impossible. That would not only increase navigating costs greatly, but would hamper the movement of perishable freight tremendously. And since the first of this year to the end of April approximately 480,000 boxes of Florida citrus fruits were transported down the St. Johns on their way to market. And figure the savings.

Because there is no longer any regular passenger service maintained upon the St. Johns many assume erroneously that navigation upon the river has seriously declined. On the contrary. Fifty per cent more freight is now moving upon the St. Johns than when the Clyde maintained its passenger service.

Once in these columns we related

how S. O. Chase, Sanford, the president of Chase & Co., sold what is now the beautiful town of Winter Park as an acreage transaction for the late General Henry Sanford. Only very recently did we learn however that in high quarters he is credited with being one of the first two white men ever to cross the Everglades. And they ran out of grub, too, toward the end of the trip, which doubtless contributed much toward making the journey interesting.

The recent suicide in New York of Frederick Ruth was just another aftermath of the deflation and depression. It ended the career of one who must be recorded as among the foremost developers of the Ridge section. Frederick Ruth, then a young and far from wealthy New York lawyer, inherited three thousand acres of Florida pine woods in a then undeveloped part of the state. He dreamed the idea that became a reality in the Mountain Lake Club. Assisted financially and otherwise by E. C. Stuart and G. V. Tillman of Bartow and the late Myron C. Gillett of Tampa he began the formation of the richest and most exclusive club-colony in the state, with important citrus plantings as an incident. Frederick Ruth is gone, but Mountain Lake stands as his monument.

Attracted to Mountain Lake by its social and other advantages Edward Bok build himself a home there. Wandering afield in the winter sunshine he sat atop Iron Mountain that looms at the rear of the club grounds and dreamed a dream for himself. Today the Bok Tower marks the final resting place of Edward Bok, and hordes of humans come from afar to view what has quickly come to rate as one of the world's architectural masterpieces, along with the Taj Mahal.

To New Yorkers perhaps the most interesting feature of Frederick Ruth's death was the fact that in the famed Waldorf-Astoria he took his life with a shotgun. The Waldorf and shotguns are not associated in popular fancy. We in Florida can find interest in how his early dream brought to us the Bok Tower, and the bells.

Now comes recognition of citrus growing from none other than the national body of the Boy Scouts of America. Scouts living in citrus producing areas are to be allowed to acquire merit badges for practical knowledge of, and work in, citrus growing, in the same manner as they may obtain similar recognition for work in electricity, carpentry, bird lore, etc. In furtherance of this the national body has approved a specially written text book upon the subject which has been prepared by Dr. A. S. Rhoads, the well known authority, of Cocoa, Florida, and Dr. H. J. Webber of California.

And Chester Merrill of Leesburg, manager of the Lake and Marion sub-exchanges of the Florida Citrus Exchange, calls our attention to the number of citrus men who are candidates and in line for election to the next Florida legislature. Apparently it is due to be a citrus-conscious legislature. The phrase is Chester's.

Driving past the Orlando airport on a Sunday afternoon, and a whole flock or covey of planes parked around the hangar. Stopping to take a look we discovered that the two largest and finest belonged respectively to Ben Conner of Bartow and B. C. Skinner of Dunedin; but neither of the two citrus magnates in sight, evidently both gone downtown and probably for the purpose of feeding their tapeworms.

W. H. (Bill) Mouser, the w.k. Orlando shipper, wearing a hat and carrying another. We wondered if he was getting ready to throw one into a ring somewhere, but he said, "emphatically not".

One of the most significant, to us, phases of the past season's operations in the citrus field in Florida has been the direct advent of one of the smaller grocery chains. Following the reported purchase of the control of one of the independent packing houses in a southern county by the principal of such a chain that packing house has purchased for cash and handled a volume of fruit far in excess of its handlings in any previous year since

(Continued on page 24)

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with which is merged The Citrus Leaf

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CHICAGO REPRESENTATIVE:
Joe Eiser, 5424 Glenwood Avenue
Telephone—Long Beach 2429

NOT AS BAD AS PAINTED

Many Florida publications and not a few Florida individuals, including some citrus growers, have been so busy telling the world about the "chaotic" condition of the Florida citrus industry that many people have come to the conclusion that the industry in this state is on its last legs, if, indeed, it has not already gone to the demimition-bow-wows. The picture has been painted in such deep, black colors that it is not strange that some citrus growers have come to look upon themselves as the pet victims of adversity, the choice, particular aversion of an adverse fate.

True it is that Florida citrus growers have fallen far short of that measure of prosperity which might have been desired. True, some of them have found their trial balances "in the red" during the past two seasons. True, all of us wish that conditions in the industry might have been more favorable. But it is not true that Florida citrus growers have suffered more, as an industry, than those engaged in other industries.

Let us stop a moment and consider the situation as it really exists, forgetting for the moment the "chaotic" propaganda which has flooded the public prints and the rostrum.

Take, for instance, the condition of the cotton planter who is selling his product, if he sells at all, at from five to six cents per pound. Or, if you prefer, take the condition of the wheat grower, who sees the product of his fields quoted at a bare fifty cents per bushel. Or take the cattle, hog or sheep grower, who is selling his stock "on the hoof" at lower prices than have ruled at any time during the past three decades. After you have considered the plight of these growers, just ask yourself how you would like to exchange places with any of them.

Even in the citrus field, Florida is by no means at the bottom of the list. If you have kept in touch with the auction markets, you no doubt have noticed that Florida oranges have consistently outsold California fruit throughout the season, while the Florida grower of grape-

fruit has fared much better than his brother grower in Texas. Would you for a moment consider changing places with the Texas or California citrus grower?

And in the field of business, how much better off is the merchant from whom you buy your sugar and your coffee, your hats and your shoes? How much better off, indeed, the banker who cashes your check or who (if you are lucky) takes the note you tender to meet your pressing needs?

There has been no depreciation in the sales value of Florida citrus groves comparable to the decline in the value of cotton, wheat or rice lands. No such depreciation as has beset the merchant with his stocks, the banker with his bonds or the owner of railroad or other public utilities stocks.

The Florida citrus growers during the past two years have taken their losses along with others engaged in every line of industry, but in comparison, their losses have been less violent and their industry stands upon a firmer basis than that of almost any other calling. We in the Florida citrus field have many problems to solve, we have much to work for in the betterment of conditions, but if we will look the situation squarely in the face and consider our own situation in the light of the plight which attends most other industries, we must agree that much of this talk of "chaotic" conditions emanates from sources ignorant of actual conditions or that it is fostered by motives which are open to question.

The Florida citrus grower is just suffering in common with all other interests from the result of a deplorable depression, but he is in better condition to weather the storm and to more readily recover from its effects, than most other industries. Meanwhile, if he properly cares for his grove, he has an investment upon which he may hope to realize handsomely, once the depression has definitely "turned the corner."

CITRUS INFORMATION

In this issue, The Citrus Industry presents a number of papers presented at the recent meeting of the Florida State Horticultural Society. These papers deal with various angles of citrus culture by men who have devoted a lifetime of study to the subjects covered. They represent the best thought of the best minds in the industry. Naturally they find a place in the columns of The Citrus Industry.

The papers presented this month are but the beginning of similar papers of interest on citrus topics which were presented at the Horticultural meeting. Other papers dealing with citrus topics will be printed from month to month until the entire range of topics covered have been printed. No reader of The Citrus Industry should overlook these valuable and instructive papers.

The Tampa Traffic Bureau recognizes merit when it finds it. This is proven by the unanimous re-election of C. T. Melvin as chairman of the bureau.

Clitocybe Mushroom Root Rot of Woody Plants In Florida

Address delivered from State Radio Station WRUF at Gainesville, March 21.

By Dr. Arthur S. Rhoads, Associate Plant Pathologist, Cocoa Laboratory of the Florida Agricultural Experiment Station.

Field studies and observations during the last few years have demonstrated that a root rot, caused by the mushroom or toadstool fungus *Clitocybe tabescens*, is a destructive disease of widespread occurrence in Florida, especially in sections where oak trees occurred prior to clearing the land. This disease is responsible for frequent and annoying losses of a wide variety of woody plants, including many of the common fruit trees and the trees and shrubs used in the planting of roadsides and home grounds.

Among the fruit trees and vines which have been found to be attacked by the *Clitocybe* root rot fungus may be mentioned grapefruit, orange, tangerine, common guava, Cattley guava, peach, grapevines, plum, sand pear, loquat, apple, apricot, avocado, Surinam cherry, and Java plum. The list of ornamental trees and shrubs attacked, which includes a number of conifers, is too large to enumerate here. The different species of the so-called Australian pine, or *Casuarina*, which have been widely planted as windbreaks, roadside, ornamental and hedge trees throughout the central and southern parts of peninsular Florida, are especially subject to attack by the described from Oklahoma. This extreme susceptibility to mushroom root rot constitutes a serious drawback to the planting of this popular tree in Florida, especially on land where oak trees have occurred. In addition to woody plants, three kinds of bananas and the Canary Island date palm have been found to be attacked by the *Clitocybe* root rot fungus.

Clitocybe mushroom root rot appears to be confined to the southern states, ranging from Florida and



Dr. Arthur S. Rhoads

North Carolina west to Missouri, Oklahoma and Texas. The earliest authentic record of the occurrence of this disease in Florida dates back to described from Oklahoma. This disease appears to be a native one in forested regions and to have spread to orchards and plantings set out on these lands after clearing.

The symptoms of *Clitocybe* root rot vary greatly with the kind and size of the plant attacked. In a great many instances no symptom is observed by the layman until the attacked plant suddenly wilts, dries up, and dies. In the case of Australian pine trees attacked by this root rot fungus there is often a more or less pronounced yellowing and shedding of the foliage branchlets. In those cases in which the disease does not progress with great rapidity, the new foliage branchlets developed may be only about half their normal length. In cases where the disease

progresses rapidly the branchlets simply turn brown, dry up and the trees die suddenly.

A close inspection of the base of the trunk or stems of attacked plants usually results in finding the bark dead and more or less cracked. Cutting into the bark at the bases of the attacked tree or shrub with a knife generally suffices to disclose the vegetative growth of the root rot fungus, consisting of a whitish to creamy growth of mycelium developed between the bark and the wood and within the inner layers of the bark. After gaining entrance at some point on the root system, the fungus develops more or less rapidly until it involves a considerable portion of the root system. By this time it usually develops around the root crown of the attacked plant to such an extent as to girdle it and interfere with its water and food conduction, whereupon death soon follows. In citrus trees, where this root rot disease appears to progress much more slowly than in many woody plants, the disease usually is characterized by the presence of dead lateral roots and by the dying of irregular areas of bark at the base of the attacked tree, which is occasionally preceded by a slight gumming. Such trees have much the same appearance as trees attacked by foot rot and the tops eventually become pallid and die back in the same way. In fact, it is clearly evident that *Clitocybe* mushroom root rot has been active on citrus trees in Florida for at least several years but that this particular disease was not distinguished heretofore from foot rot, which it closely resembles in some respects.

An additional symptom of the occurrence of *Clitocybe* root rot is the development of one or more clusters of mushrooms or toadstools at the bases of trees on which the disease has been working for some time. These fruiting bodies of the root rot fungus consist of groups of from a few to several specimens with the stems developing from a common base. When fully developed, the caps are convex to plane or depressed with

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THE GROWERS' OWN PAGE

ADVERTISING AND ARSENIC

Hundreds of thousands of dollars have been spent in an endeavor to establish cooperative and systematic marketing of Florida citrus fruit and millions of dollars have been devoted to advertising the superior merits of our oranges, and grapefruit. Almost every conceivable argument has been used to make us understand that we can never secure the maximum profits from fruit growing unless we market our fruit systematically. Every grower in the state realizes the force of the arguments presented just as every grower knows that good, tree ripened Florida fruit has no superior—if it even has an equal—any place in the world. Why then when these facts are conceded do we not cooperate in marketing and why do we not succeed in convincing the northern markets that Florida fruit has no equal? We have spent money enough in our messages and we have talked enough about our products to convince the most obtuse, if advertising would do the trick. We have, to a great extent lost our investment in advertising because too frequently we do not deliver what our advertisements tell people to expect, namely: fine, juicy, sweet fruit.

Cooperation will never be an accomplished fact as long as a few packers and speculators are able to offer certain growers more money and quicker money for their fruit than those growers can reasonably expect to receive by shipping cooperatively, and those packers can continue to offer more money just as long as they can find ways and means of tricking the ultimate consumer by shipping immature or green fruit artificially colored to make it attractive to the eye and arsenically treated to reduce the acid content.

The reader may be reminded that we have laws on our statute books which established standards of maturity and which laws should prevent the shipment of immature fruit. Right, Mr. Reader, we have 'Green-Fruit' laws but the present law is not designed solely to stop the shipment of fruit which is sour and unpalatable. It is designed to "lengthen the shipping season" so that certain packing house interests can pass more fruit over the grading belts earlier in the season than nature intends, and flood the receptive early markets

This department is devoted to the growers, for their use in giving expression to their views and a discussion of growers' problems. Any grower is welcome to make use of this department for the discussion of topics of interest. The only requirements are that the articles must be on some subject of general interest, must be reasonably short and must be free from personalities. The editor assumes no responsibility for views expressed, nor does publication imply endorsement of the conclusions presented.

of the north.

At the last session of the legislature a bill was presented in the House which had the approval and hearty support of Commissioner of Agriculture, Nathan Mayo. This bill was drawn scientifically and established standards which would have practically insured the shipment of only good ripe fruit from Florida—the kind of fruit our advertisements tell the people we have. The "green fruit" lobby failed to prevent the passage of the Mayo bill in the House but they succeeded in stopping it in the Senate and the result is the present compromise measure. It is a better bill than we used to have but it does not insure the buyer what he is entitled to receive and what he is told to believe he will get. It is, generally speaking, a bill which would not worry the "green fruit" shipper too much if he could arrange to have a few thousand boxes of arsenated fruit to mix with low standard sour stuff so as to get by the maturity fruit inspectors.

A surprising thing happened to the green fruit shippers last year. They found all of their arsenic treated fruit seized by the Department of Agriculture. Upwards of 600,000 boxes of arsenic treated fruit was held by the Commissioner of Agriculture, and, although the green fruit and arsenic specialists moved heaven and earth to get the fruit released so they could use it to mix with immature fruit and rush the combination to the northern consumers, not one box did they succeed in getting away with, and none of this seized arsenic fruit was shipped until released by legal decision.

For the first time in the history of the fruit industry the men who have previously evaded the law, by combining arsenically sprayed or dusted fruit with plain green fruit, were given a lesson in behavior.

For the first time in the history of the fruit business the green fruiter was prevented from interfering with

efforts towards honest marketing, and was unable to take advantage of legitimate packing house interests—either independent or cooperative.

During the fight against those who had sprayed or dusted their own groves, or groves they had leased, with various mixtures containing arsenic practically every honest grower and shipper in the state watched with intense concern the legal struggle between the high priced legal talent employed by the arsenic defenders and the attorneys of the Department of Agriculture. It was a war to determine once and for all time whether or not the arsenic-green fruit advocates could continue to dictate what kind of fruit should be shipped from Florida—to determine whether or not the consumers of Florida citrus fruit would ever be able to read our advertisements about the nice sweet fruit we had for sale and then go out and get some.

In the past arsenic dust or spray was used by a few fruit speculators in order to cut the acid content of citrus fruit, thereby enabling them to evade the penalties of the green fruit or maturity laws and in consequence permit them to reach the early high priced markets before other shippers or growers could do so. It frequently happened that these fellows did not confine themselves to shipping the fruit treated with arsenic in its unnatural state but used the low acid arsenic fruit to mix with green fruit so that the resulting mixture would pass the Maturity Fruit Law ratio. If the ratio was the legal 8 to 1 there was nothing the inspector could do but let the fruit be packed. When such mixed fruit reached the markets, being nicely colored artificially, it sold for high prices to confiding buyers but when the buyer attempted to eat it he was apt to find two-thirds of the fruit so green he could not stomach it and the balance so highly arsenated that it was sickening. After that it is doubtful if he would believe the tale told in the advertisements about Florida fruit.

Realizing that a new legislature will soon be selected by the voters of Florida the advocates of arsenic are leaving no stone unturned to elect representatives who will vote to nullify or amend the arsenic law. They want what they call a "control bill". They wish to legalize the use of ar-

(Continued on next page)

CITRUS COMMENTS

—BY—

Charles D. Kime, Orlando, Florida

This department is devoted to furthering horticultural interests of Florida. Letters of inquiry, discussion or criticism will be welcomed

Lime Sulphur a Most Effective Spray Material

Insect and disease control in a grove is never completed 100%. There is always some trouble we wish we did not have. Frequently a specific insect or some certain disease will become so severe, measures for its control become necessary.

Rating of Lime Sulphur

Among the liquid sprays used as both an insecticide and a fungicide lime sulphur ranks at the top. It is rated as highly effective insecticide for such citrus pests as rust mites, six spotted mites, spider-mites and will also kill scale crawlers and even scale eggs where exposed to the spray very effectively. It is also rated as a fungicide when used in sufficient strength for melanose and scab.

As compared with other materials in use today lime sulphur does affect every insect of major importance in the grove at some point in its life history except one; the "citrus" aphis. It does this without giving rise to conditions that later on in the year will prove very troublesome to control or cannot be controlled at all without injury to tree and (or) fruit. There are a number of other insects that may at times reach epidemic proportions that are not affected in any way by lime-sulphur or even by combinations of sulphur and other materials or by dusts, but none of them ever seem to reach the proportions of a general epidemic. They tend to remain closely restricted to certain groves or small areas of groves.

Insect Pests Not Affected By Lime Sulphur

Locally mealy bug has often caused serious concern. To a less extent such insects and pests as the orange, tortrix (shot hole borer) bag worms, cottoney cushion scale, several varieties of soft scale, wax scales and on occasions such garden varieties of pests as grass hoppers, katydids, orange dogs and pumpkin-bugs, and even ants have caused plenty of trouble. Of this group the pumpkin bugs are the worst. But

usually they are heavily parasitized and killed out in that way.

Insect Pests Affected by Lime Sulphur

Among the more serious scale pests that are affected by the spray at some point in their life history stages, are Florida red scale, Chrysomphalus acidum (Linnaeus); purple scale, Lepidosaphes beekii; Oystershell scale, C ulmi; Chaff scale, Parlatoria pergandei; and several others that become less abundant. The citrus whiteflies are affected in both the egg and crawler stage. The strictly scale insects mentioned are affected largely in the crawler stage tho the eggs masses if exposed would be largely killed out, where actually covered with the spray.

During the life cycle of the scale insects there is a definite spring peak of abundance of young scale and crawlers. At this time the new-practically always correspond to the them. This period of abundance will

ly hatched mites and young crawlers can be found migrating from place to place evidently in search of a desirable location on which to settle and make a scale insect, which is period of greatest tree activity and growth. There seems to always be a direct relationship between the movement of tree sap and the maturity of the scale's life cycle. This is particularly noticeable in the white fly. Adults on the wing are rarely noticed until new growth has reached a sufficient size to accommodate whitefly eggs. Then the adults are noticed accumulating on such growth in abundance and depositing eggs there. Purple scale and Florida red scale occur at a later period in greatest abundance in the crawler stage, because the locations they need on which to settle down for feeding are better for them a little later. The spring broods are larger than other broods because the rest period between growths has been longer and the

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GROWERS' OWN PAGE

(Continued from preceding page)
sic under some kind of control system. They call this proposed bill by some nice sounding titles and they say some nice things about how fine it will be if they are again permitted to use arsenic but if it is a fact that the best fruit in the world is produced here then all we have to do in order to receive better prices is to ship nothing but ripe, sweet and juicy fruit, but we will never be able to convince the buyers of the superior quality of our citrus if arsenic is again legalized.

When unfair practices are discredited and unfair competition is eliminated in the treatment, purchasing and marketing of fruit and when the growers of the state rise up in their might and insist upon the enactment and maintenance of laws which will guarantee that only the kind of fruit we advertise that we produce will be shipped from the state then and then only will uniformly good prices be obtained and safety

of investment secured.

Efforts expended by fair independent packers or shippers or by the cooperative organizations to better the condition of growers will never succeed as long as a small group of selfish men can prevent beneficial legislation or threaten the existence of the present Anti-Arsenic Law.

If, for once in the history of the fruit industry, we strengthen our Maturity Fruit law and at the same time hold fast to our law prohibiting the use of arsenic to artificially reduce the acid content of fruit; if, in other words we back up the millions spent in advertising the superior merit of Florida citrus by proper legislation guaranteeing that fruit to be sweet and free from arsenic trickery then and then only will we begin to get value received.

For years we "have fooled some of the buyers all of the time, and all of the buyers some of the time". Lets stop trying to fool any of them at any time.

Norman G. Nicoll.

CLITOCYBE MUSHROOM
ROOT ROT OF WOODY
PLANTS IN FLORIDA

(Continued from page 11)

age, fibrillose-scaly, whitish to light tan or honey-colored, and range from 2 to 3 $\frac{1}{4}$, or sometimes 4, inches in diameter, with whitish gills underneath. These mushrooms are sufficiently distinctive that they should not be confused with other mushroom or toadstool fungi which may occur around trees but be without any pathological significance. These clusters of mushrooms develop chiefly from October to early December but may also occur at other months, depending upon the soil moisture conditions. The clusters attain their full development within a few days under favorable conditions and decay very rapidly in warm wet weather. However, if dry weather follows their development the clusters may dry up and remain recognizable for at least 2 to 3 months, and often much longer, thus marking the tree at the base of which they occur as undoubtedly one attacked by root rot. The presence of either fresh or old fruiting bodies of this root rot fungus has frequently enabled attacked citrus trees to be located long before there was any evidence of the decline of the tops.

The root rot caused by the Clitocybe fungus closely resembles in many respects that caused by the well-known honey agaric or oak-root fungus, *Armillaria mellea*, especially in regard to the habit of growth, the production of rhizomorphs, similarity in artificial cultures, appearance of the mushroom-like fruiting bodies, and prevalence on land where oak trees have occurred. The Clitocybe root rot fungus is propagated by means of the myriads of spores developed on the gills of the fruiting bodies, from infected roots that may be in the soil, and by means of the rhizomorphs or strand-like organs of the fungus which are developed under certain conditions. Preliminary studies indicate that the fungus appears to be able to live over in the soil even in the absence of old roots.

Since this root rot fungus can penetrate living roots of healthy trees through uninjured bark and can infect sound roots in contact with diseased ones, it must be regarded as an active parasite which is capable of spreading to adjacent trees, especially when closely planted. The tendency of this root rot fungus to spread from attacked trees to adjoining healthy ones is especially striking in Australian pine windbreaks where the trees often die rapidly in both

directions from points where one becomes infected and dies. Another striking feature of the Clitocybe root rot fungus is that the soils in which it occurs with greatest frequency are well-drained light sandy soils of rather dry nature.

People who have lost trees and shrubs from the attacks of Clitocybe mushroom root rot are naturally interested in the means of controlling this disease. About all that can be said in this connection is that it is far easier to take steps to prevent the occurrence of this disease than it is to control it after it has begun to attack trees. In clearing timbered lands for grove sites, with the exception of low hammock lands where it would be economically impossible, it is highly desirable to remove all roots as thoroughly as practicable and to prepare the land by deep plowing, which will bring to the surface roots which have been overlooked in clearing. This is especially important in localities where oak trees occur on the land. In setting out ornamental trees and shrubs on the home grounds, it is well to dig generously to be sure that no old tree roots occur in the ground, or to remove any that may be encountered.

In regard to the possibility of treating attacked trees or shrubs to save them it is unfortunate to have to state that by the time the layman learns that his plants are attacked by root rot it is generally too late to save them. This is especially true with the very susceptible Australian pine trees since by the time the first prominent symptoms of the trouble are detected the root system and root crown will generally be found to be so extensively invaded by the mycelium of the root rot fungus that treatment is hopeless. In citrus trees, however, which fortunately appear much more resistant to attack by the root rot fungus, attacked trees, if taken in time, often can be saved by carefully removing the soil from about the root crown and adjacent main roots and performing careful surgical work to remove all dead roots in their entirety and to cut out all areas of infected bark that may occur on the living main roots. This calls for rather tedious and painstaking work which few growers would care to attempt. The aeration of the root crown and adjacent parts of the main roots secured by allowing these parts to remain exposed for some time after removing the soil alone proves very beneficial in checking the development of the root rot fungus since it is readily killed by drying. Where trees or shrubs are known to have died from the attack of the Cli-

tocybe mushroom root rot fungus it is advisable to dig them up promptly, taking care to remove in their entirety all the roots and all chips of bark made in cutting. After the complete removal of attacked trees or shrubs it is also advisable to allow the holes to remain open for a few weeks' exposure to sun and aeration before replanting. Pouring from one to a few gallons of Bordeaux or caustic soda Bordeaux mixture into the excavation should prove valuable in killing any strands of the fungus which may remain in the soil. Unless these precautions are taken, new trees set in the same places are liable to develop the disease at an early age. In view of the fact that such a large variety of plants are attacked by Clitocybe mushroom root rot it is not possible at present to recommend any particular ornamental trees or shrubs as being resistant to attack.

Although it is only possible to advise in a general way concerning the control of this mushroom root rot disease, it is desired to focus the attention of growers and home owners upon this disease so that they may be on the lookout for it. The Experiment Station is interested in securing root specimens of trees and other woody plants attacked by this disease so that they may learn the complete category of plants attacked, which ones are attacked most frequently, and the general distribution of this disease throughout the state.

FORT PIERCE AREA
EXPECTS NORMAL CROP

At the first of the month T. S. Kirby, manager for the American Fruit Growers Inc. at Fort Pierce, bloom in that section was still coming on with indications for a crop of normal volume next year. All the groves there about are reported now as being in the best condition since the storm of 1926.

The possibility of early development of Fort Pierce as a part intermediate between Miami and Jacksonville is a topic of much interest to the growers of that section at present.

"What kind of a car have you."

"I've got a wreck."

"A wreck?"

"Yeah. Every time I park it a dozen people come up and ask if I've reported the accident yet."

—Pomona Sagehen.

"Well, ole man, see you in hell."

"Yeah, you social climber."

Ala. Rammer-Jammer.

BLUE GOOSE NEWS

Monthly News of American Fruit Growers Inc.



Edited by The Growers Service Department

N. Y. DOCK STRIKERS EMBARRASS FLORIDA

Approximately forty thousand boxes of Florida citrus fruits recently were tied up upon coastwise steamship docks in New York City by the strike of longshoremen and unloaders which was declared on April 16.

For about a week the fruit remained upon the docks and in the holds of steamers, despite all efforts of Florida shippers. By unusual efforts the steamer authorities managed to maintain forced ventilation upon part of the fruit, but meanwhile all efforts to secure consent of the strikers for its removal were unavailing. Finally concerted efforts from Florida and united action by the New York representatives of all Florida shipping concerns involved resulted in the removal of the fruit into cold storage.

The strike was precipitated by proposals to reduce the pay of longshoremen from seventy-five cents per hour to sixty-seven cents per hour; and to reduce pay for overtime work from \$1.10 per hour to \$1.00 per hour.

ODESSA HAS FINISHED SHIPPING FOR SEASON

Odessa Lake Region Growers Inc. at Odessa in Hernando County finished shipping for the season about the first of the month. R. J. Flynn, manager there, reports the growers generally quite optimistic concerning the outlook for the coming season.

Due to lack of moisture bloom was quite late, but with fair precipitation the outlook is said to be for a larger crop than that of last season.

Considering the average quality of the fruit marketed during the season just closed growers are said to regard the prices received as generally satisfactory. Production efforts in the Odessa section are said now to be directed toward better fruit, the growers realizing that quality fruit nets more money than the ordinary sort.

MANATEE GROWERS SEE LIGHTER CROP YIELD

With bloom showing in considerable volume at about the first of the month prospects were for a fair crop for Manatee County next season, according to Ervin Springstead, of the American Fruit Growers Inc. packing house at Palmetto.

Contrary to earlier expectations the citrus trees upon Terra Ceia Island and elsewhere in that section which were flooded with salt water in the record high tide of the March storm are not showing signs of coming back. Some estimates indicate perhaps a ninety-five per cent loss of such trees. In addition the spray damage to trees in exposed positions will operate to further reduce the total yield in that territory.

Manatee County is noted for its large yield of very early grapefruit; but the lateness of this season's bloom argues for a much later than normal maturity of the crop for next season given summer weather of normal character.

PINELLAS CROP IS ANTICIPATED GOOD

The prospects for next season's crop in Pinellas County were very good at the first of this month, according to J. W. Parker, manager of the packing house of the American Fruit Growers Inc. at Walsingham, near Largo.

Bloom though late was heavy, though the setting of the bloom still was a matter of guesswork. Trees generally were reported as very healthy in appearance and seasonal rains should assure an excellent crop. The preponderance of the Pinellas production is in grapefruit.

Orange trees showed an exceptionally heavy bloom, and tangerine trees exhibited far heavier bloom than they did last season.

The Walsingham packing house shipped its last car of the season on April 23, the season proving to be one of considerably more satisfaction than was anticipated at the first of this year.

GRAPEFRUIT SCARCE ORANGES ARE SHORT

The past month has seen generally satisfactory markets for both Florida oranges and grapefruit. Doubtless price levels might have averaged higher but for the amount of Florida fruit which was for a time tied up upon the New York docks due to the strike of unloaders of coastwise lines. During the week or more that this fruit was thus being held, with small chance to guess the outcome, it undoubtedly depressed the New York market. Fear that it might suddenly come upon the market in a block was the cause. As soon as the fruit had been moved into storage and it was evident it would come out in orderly fashion there was noticeable improvement in the market feeling.

The present most noticeable tendency in all markets for our fruit is the hand-to-mouth buying which prevails. Supplies are not being taken on in excess of immediate requirements.

With best estimates indicating less than eight hundred cars of grapefruit remaining in Florida, as of May 5, grapefruit has been placed in a very strong position, and should remain there until the close of shipping notwithstanding such deciduous fruits as may become available.

Florida Valencias, too, are in strong position, but competitive offerings from California recently have served to keep oranges from reaching higher levels, and may continue to exert influence. With very considerably less Valencias to ship after May first than were available last season, Florida Valencias would in spite of the economic situation command higher prices but for the low prices California Valencias have been bringing.

Valencias from the Pacific Coast have been selling at about a dollar a box less than they brought at the same time last year. Florida Valencias are commanding a very substantial premium over California offerings, but the lower prices for the California fruit recently tended to depress the market averages so that Florida oranges were not able quite (Continued on page 2)

BLUE GOOSE NEWS

OF INTEREST to the citrus growers of Florida, each month, contained in four pages of paid advertising from the

AMERICAN FRUIT GROWERS INC.

Florida Division

Sixth Floor, State Bank Bldg.
ORLANDO, FLORIDA



BRITISH PREFERENCE

The times published at Davenport pays close attention to citrus problems. Recently W. S. Allen its editor had the following to say regarding why the English prefer small size grapefruit:

"With a report coming to us this week on export shipments of grapefruit to the United Kingdom, we are reminded of an incident that explains one of the peculiarities of this market for grapefruit.

"It is a recognized fact among export fruit shippers that the United Kingdom trade demands small sizes of grapefruit such as 96's and 126's. Just why the English prefer these small sizes when Americans prefer the larger sizes was explained by an Englishman who visited Davenport last winter.

"The English are more precise in their table manners than average Americans. They stick to ancient customs in the matter of table ware that date back centuries, especially in the more aristocratic families where lineage and family arms are traditional and worshiped.

"Of course, the average American passes off strange foreign customs with a slight shrug of the shoulder, just as he does the right hand drive of foreign made motor cars. But when a product that is dear to the heart of Floridians, such as grapefruit, becomes subject to the peculiarities of the English people, a new interest is aroused and there is a reason, and we found out what it is.

"It seems that many years ago the

English shaped a certain size glass and that same size glass has become the adopted container for a half of grapefruit. It is a small glass and just large enough to hold a small 96 or 126 size grapefruit; and they use it with severe regularity just as they use the ancient egg cup.

"When grapefruit becomes as commonly used in the United Kingdom as it is in this country, the rank and file may even get to using soup plates for their grapefruit as some Americans do, but until then, that market demands, and gets, small size grapefruit."

GRAPEFRUIT SCARCE ORANGES ARE SHORT

(Continued from page 1)

to approach last season's prices at the same period. The growing scarcity of Florida Valencias, and their more desirable sizes, however, may help the situation, or improvement in the quality of California Valencias may stimulate their reception by consumers soon.

BLOOM SIX WEEKS LATE IN LEESBURG TERRITORY

An abundance of bloom on groves in the Leesburg area at the first of this month was reported by A. R. Sandlin, manager of Lake County Growers Inc. at that place. This is just about six weeks later than normal.

The turn of the markets toward the latter part of the shipping season has been responsible for a feeling of renewed confidence on the part of growers; and the opening of shipping next Fall it is felt will mark a return toward more normal conditions.

A continued enforcement of the spraying laws by state officials it is felt cannot fail to start next season's markets upon a sounder foundation than for several years past, with a corresponding betterment of the prospects of Lake and Marion County growers of true early varieties of oranges.

PROTEST REMOVAL OF ST. JOHNS RIVER BEACONS

The American Fruit Growers Inc. recently joined in protests to the Lighthouse Service of the U. S. Department of Commerce against the proposed removal of beacons which mark the channel of the St. Johns River.

During this past shipping season more freight has moved via the St.

Johns than in any similar period within the history of navigation upon this historic stream, and approximately one-half of a million of boxes of citrus fruits traveled by that route at substantial savings to the growers.

In citrus quarters it is felt that the governmental moves toward economy should well enough begin with the curtailment of non-essential governmental services, and that essential services, such as the beacons which make possible night navigation upon the St. Johns, can for the present very well be maintained.

DOCTORS FULLY APPROVE CITRUS BENEFIT CLAIMS

The March 12 issue of the Journal of the American Medical Association is of unusual interest to growers of citrus fruits in that it contains an official recognition by the great medical fraternity of the health benefits of oranges, grapefruit and lemons through a report of its Committee on Foods.

This committee has been established to pass upon claims for health-promoting qualities made by food advertisers for their products not only in medical journals but in other media.

Citrus interests, it is said, will do well to bear in mind however that claims for the healthfulness of oranges and grapefruit, particularly claims involving an alkaline reaction in the human system, properly may be set forth only for tree-ripened, mature fruit.

APHIDS IN HARDEE DO SOME DAMAGE

The latter part of April saw an exceptionally heavy bloom in Hardee County groves, but much of this was remaining at that time in a bud state due to continuing dry conditions, according to reports from the Avon Park packing house of the American Fruit Growers Inc.

In some localities there the aphids were working upon the young growth and the embryo blooms to an extent that the setting of the bloom was considered problematical. Conditions varied greatly in different localities and between individual groves in the same locality, but damage more or less from aphids was reported general.

The lateness of the bloom was a matter of concern, as signifying a later than normal maturity of both oranges and grapefruit in that section.

A Packing House Manager's Code

Inspired by the framed copy of the Code of Ethics for the Citrus Industry of Florida sponsored by the Florida Citrus Growers Clearing House Association, J. E. Powell, manager of the Avon Park packing house of the American Fruit Growers Inc. has worked out a code of his own, as a sort of addenda. He calls it a Packing House Manager's Code. But why try to confine its observance to packing house managers? Here it is:

- Go out of your way cheerfully to help others.**
- Be careful never to exaggerate.**
- Resist the temptation to be sarcastic.**
- Refrain from showing off how much you know.**
- Never feel superior to your associates.**
- Don't boss people not employed by you.**
- Never make fun of anyone behind his back.**
- Refrain from trying to dominate others.**
- Avoid being bold and nervy.**
- Never grumble about things you cannot change.**
- Never laugh at the mistakes of others.**
- Let mistakes of those not under your control pass without trying to correct them.**
- Keep your nose out of the business of others.**
- Never ask favors of others.**
- Greet everyone cordially.**
- Don't tell jokes which embarrass listeners.**
- Control your temper.**
- Keep out of arguments.**
- Keep your troubles to yourself.**
- Be enthusiastic rather than lethargic.**
- Be always cheerfully energetic.**



Continuing Contacts

Florida citrus packing houses will close for the seasonal shut-down, but—

Not a selling office will close.

Not a contact with wholesalers, retailers or consumers will be interrupted.

Seasonal offerings from other producing sections will supply the wants of trade and public.

Blue Goose advertising will continue.

Blue Goose merchandising will go on.

Blue Goose salesmen will be in daily close touch with the buying trade—no letting up or letting down.

And Blue Goose prestige will go on steadily building, a result of never being out of sight and thus never out of mind.

American Fruit Growers Inc.

Florida Division
Orlando, Florida

Traffic Matters of Importance to The Citrus Industry

Talk Made by J. Curtis Robinson, Executive Vice President, Growers & Shippers League of Florida, Before the Annual Meeting of the Florida State Horticultural Society, at Gainesville, Florida, April 21, 1932.

Reasonable rates for transportation and refrigeration, together with fast dependable schedules and service are fundamental to the continued success and prosperity of the Florida citrus industry. Anything that affects



J. Curtis Robinson

the cost for transportation, refrigeration or tends to increase or retard the distribution of Florida citrus might properly be termed a traffic of importance to the citrus industry.

There are incidental services performed by the shippers which contribute materially to prolonging the life of fruit and to insuring its safe delivery in the markets which might also come under the head of traffic matters of importance to the citrus industry, I refer to precooling of citrus by shippers.

I remember about two or three years ago when I spoke to your association, I announced that the Florida initial carriers had finally concluded they could reduce their sched-

ule from fifth morning to fourth morning to New York. This was done by the railroads after several conferences with them, and they first felt that the schedule could not be reduced. They have not only reduced the schedule from fifth to fourth morning to New York, Chicago and other northern markets, but they have maintained the reduced sched-

ule with remarkable regularity. This is a traffic or transportation matter of importance to the citrus industry which resulted largely from persistent agitation by the Growers and Shippers League.

The cost of refrigeration or other protective service is a question of great importance to growers and ship-

(Continued on page 23.)

SHIPS DO NOT "COME IN" *They have to be brought into port*



If you are merely waiting for "your ship" to come in you will probably be disappointed. But if you are doing everything you can to insure its arrival here is every reason for you to look forward to a successful conclusion of your plans.

Such a statement is merely another way of saying that the man who sets a definite goal usually achieves it while the drifter seldom reaches port. Things do not just happen, they must be wrought about. Every grower who has accomplished worthwhile success has worked according to a definite plan, constantly watching the goal ahead.

Farsighted growers, knowing the value of fertilizer, realize that they cannot neglect their crops. Small savings made by using low priced fertilizers almost always mean a later charge; for crops must feed on the materials available in the soil. If you would bring your ship safely into port use one of the many standard demonstrated brands of Armour's BIG CROP Fertilizer this year.



Our field representatives will gladly make recommendations based on the requirements of your crops.

**ARMOUR'S
BIG CROP
FERTILIZERS**
ARMOUR FERTILIZER WORKS
JACKSONVILLE, FLORIDA

CITRUS COMMENTS

(Continued from page 13)

spring flush of growth is usually heavy and comes all at one time. Later flushes find the cycles less definitely confined and overlapping generations result, so that late in the year crawlers of scales etc., can often be found at any time.

Mites Affected by Lime Sulphur

Lime sulphur is the most valuable citrus spray because of its effect on rust mites, also including six spotted mites and red spiders. Rust-mites are extremely susceptible to sulphur in any form, and the other mites are easily controlled by lime sulphur. Spider mites become most abundant before summer rains begin and will usually disappear at the time because of fungus control. They will however cause defoliation of trees during April and May if conditions are unusually favorable. As a result sprays of lime sulphur made at that time or previously will largely or altogether prevent their occurrence. RUST MITES become most abundant in May and June and continue to increase until controlled either by spraying or by entomogenous fungi. The mites breed up in the tree and migrate rather slowly out to the new growth and fruit. As a result the fruit has some size before it can be considered in a dangerous relationship to mite numbers. Due to their size the mites must be abundant before they can do any appreciable damage. They will russet leaves and cause them to drop off or become of little good when abundant. Their greatest damage is of course to the fruit and is the one trouble which occurs every year without fail. In the ridge sections of the state rust mite control must be done every year. Lime sulphur will kill rust mites in any stage and at any time. It will control spider mites and six spotted mites when in contact with them. However sulphur in any other form is not effective against spiders and the six spotted mite. Soda sulphur is sometimes used in an oil combination, but it is considered less reliable than lime sulphur. These three mites have only two stages so far as we know—eggs and live crawlers that never settle down and remain in one place as with scales. The generations apparently continue from year to year without a male stage and without any mating taking place. Rust mites become most abundant in May and June and the other two are most abundant in April. Even when not abundant at the time of spraying a well applied lime sulphur will delay the appearance of all three for weeks at a time. However, when rust mite control only is being done the

THE CITRUS INDUSTRY

spraying is usually delayed until the mites show up in numbers on the fruit.

The liquid is superior to a sulphur dust for mites because of its greater killing ability. It will last through several showers and still be effective. If rust mites alone are concerned any form of sulphur is effective. A sulphur dust has been used frequently and effectively. Dust however will not last through a rain but is easily washed off. If a period of three to five days elapses between a dusting and a shower of rain a very satisfactory control is secured with one dust. If a rain occurs another dusting will have to be made in the near future as mites will hatch out after the dust is removed and are not killed; since dust does not affect rust mite eggs. This difficulty is obviated when the liquid is used.

Action of Lime Sulphur

While lime sulphur is probably the most widely used spray for fruits very little is actually known regarding the way it kills. The oxidizing fumes from the sulphur seem sufficient when it comes to rust mites. They are extremely susceptible to sulphur even in their general neighborhood. The other mites are very resistant to the fumes however and a

May, 1932

direct hit seems necessary to kill them. Where contact is secured the liquid will kill adults and prevent eggs from hatching. Dusting will not prevent eggs from hatching nor will it give a high percentage of kill with the adults of the red spider. It is more effective with the six spotted mite. However even the dust is considered a rather effective repellent for such mites and discourages their multiplying. With scale crawlers the lime sulphur liquid alone seems really effective. Dusting has not checked scales or whiteflies.

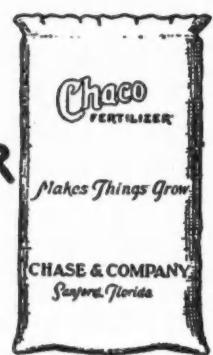
Lime Sulphur Limitations

Purple scale, Florida red scale, and whiteflies often become so abundant that no amount of lime sulphur spraying would control them. Oil emulsions worked out at the Government station at Orlando are used for this purpose. This type of spray will penetrate the scale covering and kill the scale underneath where the sulphur spray must depend only on contact with the insect itself since a lime sulphur has no power of penetration. Sulphur combined with oil is effective but is found to be somewhat unreliable; burning occurring at times with no apparent cause. This is true of both lime sulphur and soda sul-

(Continued on page 24)

Chaco
FERTILIZER

Time **MUST** Tell



Better
crops for less
money; ask any
user of Chaco.

FIRST AID

to the production of

BETTER FRUIT

FICO-60

the proven oil-spray

FICO Lime Sulphur

LIQUID Lime Sulphur

FLORIDA INSECTICIDE COMPANY

Apopka

Florida

AVAILABLE HUMUS

in its most economical form

FLORIDA PEAT HUMUS

94% Plant Food

No weed seeds
No grass seeds

FLORIDA HUMUS COMPANY

Zellwood

Florida

SHOULD TRUCK MOVEMENT OF CITRUS BE ENCOUR- AGED OR DISCOURAGED?

(Continued from page 5)

heart of the citrus fruit producer sick.

Discussing the question of the cost of transportation with a number of these truckmen, in a recent three months' survey from Richmond to Texarkana, and south of that line, I found but one who admitted that he took account of the depreciation of his truck.

In every state in which I made inquiry, there is a law that permits a farmer to peddle the produce from his farm without interference or taxation of any kind. The truckmen were quick to provide themselves with certificates obtained where they could that the fruit they were offering came from their own groves. There is a provision, I think, in the state law that any ex-service man who is partially disabled enjoys the same privilege. In some instances, it is said, some of these truckmen employ such ex-service men to ride with them and claim ownership when questioned.

The net result of this trucking is that there is practically no business done by wholesale fruit men in Florida citrus in any territory reached by these peddling trucks. This applies also to green vegetables from Florida, Georgia, the Carolinas and other states as you advance up the Atlantic seaboard. In consequence, many jobbers are either forced out of business or have lost heavily and are struggling for their existence by handling other commodities which are out of reach of the trucking peddlers.

Modern merchandising in perishables necessitates equipment of plants with refrigeration where such commodities can be preserved in storage from deterioration and decay which they would suffer without such cold storage facilities. There is great unrest among these wholesale fruit and produce dealers and naturally they are disinclined to junk their plants at great loss to themselves.

They are, throughout the country, forming associations among themselves and securing legislation looking to the control of this trucking problem. Such a law was enacted in a recent session of the Tennessee legislature, embodied in the following amendment to their revenue bill:

"Each person, firm or corporation engaged in the business of running a wagon, truck, auto or other vehicle, and who sells and delivers fruits, vegetables, nuts and produce (where it is not produced or raised by the

THE CITRUS INDUSTRY

vendors or seller,) candy, cigars, cigarettes, tobacco and drugs, or merchandise, is declared to be a peddler and as such shall pay for each wagon, truck, auto or other vehicle in each county per annum \$100.00. (This tax is not to be paid for a period of less than one year.)

"The Commissioner of Finance and Taxation shall especially charge the State Highway Patrolmen to prevent unlicensed peddlers from operating within the State."

A peddler must, if he goes into Tennessee, pay to the state \$100.00 license, to each town another license, making a total, generally, of \$300.00 in the first city that he visits and \$200.00 in each subsequent county and city. Other states are gradually enacting similar laws.

While this trucking out of Florida has practically destroyed the market, in a very large part of this country, for our citrus products, except at prices that are ruinous to producers, there is yet another feature that is just as serious. Many of our counties have bonded heavily to construct good roads. These roads are built of light material and for light traffic. They were never intended to carry such loads as are carried over them in these trucks. These bonds extend over a long period of years. The property owners are taxed beyond their ability to pay to meet the interest and sinking fund on these bonds. The roads are rapidly being destroyed and long before the bonds can be paid the roads will have been destroyed and the various counties owing these bonds will not be able to get further money with which to

reconstruct them.

In an interview with Mr. Mayo in Tallahassee the latter part of December, he stated that he had kept inspectors on the highways who had kept a close tab on this and he knew they were carrying out forty-five car-loads of citrus fruits per day and that the week before he saw me, a truck left a packing house in Polk County with 504 boxes of citrus fruits and the truck and trailer.

The trucks are with us to stay as long as we will permit them to travel our roads and the truck manufacturers and sales associations will sell trucks at a small payment down and the gasoline stations dot our highways, they will be here.

Viewing the proposition as set forth above, steps must be taken to regulate and control the trucks. Just how it can be done must be worked out. With the tremendous taxes that we have to pay, the citrus fruit producers must receive a fair compensation from their products or they must go out of business. It is the duty of the state to devise ways and means by which our citrus property and our highways can be protected from this destruction.

In discussing this matter with the manager of one of the largest shipping interests in California, he states that they are having this same trouble and that trucks are taking oranges from Southern California to El Paso, 600 miles, and as far as St. Louis, which must be nearly 2,000 miles, and that these truckmen frankly admit that if they can break even on the fruit they are satisfied to

"Black Leaf 40"

Kills APHIS and THRIPS

Widely recognized as a dependable control for *Aphis* and *Thrips* on Citrus Fruits. May be added to other standard spray materials and fumigicides.



This "double acting" insecticide has been the favorite spray material of successful citrus growers for the past 20 years. It not only kills *Aphis* and *Thrips* by direct contact, but also by nicotine fumes. This is an advantage not possessed by any non-poisonous, non-volatile insecticides.

Recommended By Experiment Stations

"Black Leaf 40" enjoys the endorsement and recommendation of leading growers, Agricultural Colleges and Experiment Stations and editorial writers throughout the country. Being highly concentrated, this reliable insecticide is economical to use as a little goes a long way. Full directions appear on every package. Sold everywhere.

Tobacco By - Products & Chemical Corporation
LOUISVILLE Incorporated KENTUCKY

KILLS BY CONTACT AND FUMES

take the cost of transportation.

This is not solely a Florida proposition. Every state in the union today is confronted with this condition. Trucks are taking cotton from the banks of the Mississippi and transporting it to the mills in the Carolinas. They have brought the railroads to their knees. We see railroad stocks such as the New York Central, the Pennsylvania and the Atlantic Coast Line and many others, that not far back were selling at from \$1.75 to \$2.25, today selling at from around \$1.16 to \$.25.

A small percentage of our citrus fruits goes out of the state by truck. That small percentage has destroyed the markets for our fruit. When I began a survey of this truck situation, in November, I left Florida with the feeling that the trucks had been a great blessing to us the season previous. It took but a few days to convince me of the error of that feeling. I can see every reason for discouraging the trucking of our fruits out of the state and I can see none for encouraging it.

A woman never forgets nor desires to forget her first love, no matter how much greater love may come to her in later years.

A FREE BOOK EVERY GROWER AND SHIPPER SHOULD HAVE

CONTAINS complete information on ETHYLENE—the magic gas which hastens ripening of matured fruits. Learn how to profit with it. Ethylene increases profits, reduces loss, saves time. Write for your copy of "Ethylene for Coloring Matured Fruits and Vegetables" today.



THE CITRUS INDUSTRY

"TRAFFIC MATTERS OF IMPORTANCE TO THE CITRUS INDUSTRY"

(Continued from page 19.)

pers.

In 1929 the Interstate Commerce Commission authorized a reduction of around \$10.50 per car in the standard refrigeration rates on citrus and vegetables to eastern markets east of the Buffalo-Pittsburg territory. The carriers sought to advance these rates but after several hearings and vigorous opposition by the League and State Railroad Commission, a reduction was secured which resulted in a saving in excess of \$500,000.00 annually.

(Concluded next issue.)

VAGRANT MUSINGS

One great difference between the man who works and the one who waits is that the former has much less time for worry.

* * *

Whatever may be his years, no man is old who retains his illusions and his ambition.

* * *

A woman never can understand how another woman can love a brutal husband, even though she loves still more a greater brute.

Twenty-three
Some men spend their evenings at the club because they cannot be spent in peace at home.
* * *

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of August 24, 1912, of The Citrus Industry, Published monthly at Tampa, Florida, for April 1, 1932.

State of Florida.

County of Hillsborough.

Before me, a Notary Public, in and for the state and county aforesaid, personally appeared S. L. Frisbie, who, having been duly sworn according to law, deposes and says that he is the editor of The Citrus Industry, and that the following is to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 433 Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1.—That the names and addresses of the publisher, editor, managing editor, and business manager are:

Editor, S. L. Frisbie, Tampa, Fla.
Business Manager, S. Lloyd Frisbie, Bartow, Fla.

2.—That the owners are:

Associated Publications Corporation, Tampa, Florida.

S. L. Frisbie, Tampa, Fla.

S. Lloyd Frisbie, Bartow, Fla.

B. L. Gable, Lutz, Fla.

F. L. Skelly, Orlando, Fla.

Frank Kay Anderson, Altamonte Springs, Fla.

B. W. Skinner, Dunedin, Fla.

F. P. Wall, Mansfield, Ohio.

3.—That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are:

Bankers Mortgage Co., Orlando, Fla.

Sworn to and subscribed before me this 15th day of April, 1932.

J. W. WADSWORTH,

Notary Public.

The Best Market In Florida

Is made up of the citrus growers of this state.

The logical medium through which to appeal to this group is

The Citrus Industry

because it is addressed solely to this group of readers.

A lot of advertisers have already learned this.

—A trial will convince you of the wisdom of this course.

CARBIDE AND CARBON CHEMICALS CORPORATION

30 East 42nd Street, New York City

1310 Santee Street, Los Angeles

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Warehouses in Los Angeles, Tampa, Jacksonville, and other principal cities

Units of Union Carbide  and Carbon Corporation

CITRUS COMMENTS
(Continued from page 20)

phur and oil combinations, the soda sulphur plus oil is relatively safe and effective combined spray. Oil alone is not an effective spray against mites or aphis, it is most effective on scale insects. Sulphur is subject to other combinations that are effective but these will not be gone into this month.

The main limitation of lime sulphur is that it will not control scales or aphis unless combined with other materials. It is however a low cost product and can be used in any or all spray work and the other necessary ingredients added.

Manufacture of Lime Sulphur

Lime sulphur is not a mechanical mixture but is made by boiling sulphur and lime together. The self boiled mixture is less uniform than the commercially boiled and prepared product. Home made lime sulphur is rarely found any more as few growers are equipped to make it successfully. The commercial product is sold on a low margin and is usually very reliable as to composition and concentration. It is therefore much easier to handle and obtain. For reasons of its more variable composition the self boiled material has also been discarded in favor of the boiled product. Commercial lime sulphur is a perfectly clear, highly colored liquid. It is used on a specific gravity basis. This means that the combined sulphur and lime in the liquid has a certain constant concentration and the rate of dilution refers to that degree of concentration. If the maker of the material is reliable the specific gravity of his material will be obtained by using nothing but lime and sulphur. However the specific gravity of the product can be easily changed by adding salt or other easily dissolved product to the mixture. The Baume hydrometer is used to test the degree of concentration. A 33 degree product is usually bought. At this concentration a dilution of from 1 to 30 to 1 to 50 is made. Dormant sprays at a dilution of one gallon of the material to (20) twenty gallons of water has been used. This is rarely done on citrus.

Lime sulphur is made by boiling together 50 lbs. of stone lime (95% CaO) 100 lbs. of ground sulphur and 50 gallons of water. A small amount of water is placed in the boiler and heated, (10 gallons). The lime is added to this and while it is slackening the sulphur is added. Sufficient additions of water is added to make a thin paste and the whole is thoroughly mixed. When slackening is finished more water is added to bring the to-

tal up to 50 or 60 gallons. The solution is then boiled vigorously for fifty or sixty minutes. While boiling it is stirred constantly. Over boiling or under boiling is injurious to the finished product. As soon as the time has expired the material is cooled and all sediment strained out. It is then ready for use or for storage. The finished product is an amber colored liquid and has little or no sediment. It can be stored for a long time if in air tight drums or if the surface of the liquid is kept covered with oil to exclude air. Any quantity can be made at once if the proportions are maintained.

For ordinary purposes the concentration is best kept at 33 degrees Baume at which strength the material is diluted at one gallon of the lime sulphur to fifty gallons of water for ordinary spraying. Fungus control however will demand a stronger product, so if that is a part of the spray program a dilution of as low as one gallon of the spray material to thirty of water may be advisable.

IMPRESSIONS

(Continued from page 9)

it was established. The prices paid were generally reported as slightly higher than elsewhere obtainable.

Through an affiliated company this same packing house was reported as making available to growers a large amount of money on mortgages upon bearing groves within a radius of a few miles. Many growers are reported as having mortgaged their groves, and others refinanced by obtaining larger mortgages to lift older mortgages coming due. It was extremely interesting to learn that without exception the mortgages thus being placed are twelve-months documents.

The continuing impetus to the movement to make Fort Pierce the intermediate port between Jacksonville and Miami may get results yet.

In which event, the old twist-of-the-tongue slur by which Fort Pierce became Fort Pierce, away back before the organization of the Anti-Mosquito Society, may have a more apt and polite application.

High: "Have you heard the new hat song?"

Hat: "Nope."

High: "Chapeaux I Had Never Met You."—Ala-Rammer-Jammer.

He: "What kind of lipstick is that?"

She: "Kissproof."

He: "Well, rub it off; we got work to do."—Lehigh Burr.

When there is nothing more to be said some boob always says it.

—Arizona Kittykat.

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Notary Public.

Conditioned 200 Mesh

Acme Dusting Sulphur

Free Flowing — Non Lumping — Non Caking

Don't Rely on Sulphur of Unknown Fineness If You Want Results

RUST BRAND

Tests 99% Passing 200 Mesh — 97½% Pure

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GENUINE PERUVIAN GUANO



The Bad Smell is no Social Error

YOU live in an age of smells, most of them serious social drawbacks like foul breath and body reek. But there is one great exception---Genuine Peruvian Guano. Its distinctive (accent the second syllable if you want to) odor has no place in the parlor. But how hungry trees and crops welcome it!

In fertilizers the peculiar, nose-compelling stench of Genuine Peruvian Guano is the badge of this aristocrat of plant foods. Coming from your fields and groves, it is not a social error. Instead, it tells the world that you are moving in the best fertilizer circles.

Frankly, you ought to be glad that Genuine Peruvian Guano smells so bad. That powerful Guano odor can't be imitated any more than crop raising qualities of Genuine Peruvian Guano can be imitated. Your nose knows when it is present. Naco Brands and Peruvianite have the bad smell of good Guano.

NITRATE AGENCIES COMPANY
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JACKSONVILLE - FLORIDA



**THE AGRICULTURAL
WORK CENTERED AT THE
UNIVERSITY OF FLORIDA**

(Continued from page 6.)

The enrollment this year is 236, four more than that of last year; five graduated at end of first semester; 25 are candidates for degrees at end of the session in June.

Although difficult to determine accurately, it is estimated that of the graduates 20% are farmers or fruit growers, 27% engaged in special agricultural work such as demonstration agents, state or Federal inspectors, research workers, etc., 15% agricultural teachers, a total of 62% which is large as compared to most other states.

Students 18 years old or over are allowed to enroll as special students and permitted to take such studies in practical agriculture as the Dean on consultation approves. A small number from other states coming or recently come to the State enter each semester to remain one, two or more semesters as well as a member of mature students from within the State.

We are making an earnest effort to train the young men who come to us to better aid in developing the agricultural resources and bringing about a more profitable utilization of the products of the State.

The game loser is ever the modest winner. That's why the world loves the cheerful loser.

CLASSIFIED

Advertisements

The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

MISCELLANEOUS

D U S T E R — Niagars, Air-Cooled engine Steel truck-mounted. Nearly new. Half price. Samuel Kidder, Monticello, Fla.

SEEDS — ROUGH LEMON, SOUR ORANGE, CLEOPATRA. Pure, fresh, good germination. Also seedlings lineout size. De Soto Nurseries, DeSoto City, Fla.

FANCY ABAKKA pineapple plants. R. A. Seeger, Ancona, Florida.

THE CITRUS INDUSTRY

HIGH BLOOD PRESSURE easily, inexpensively overcome, without drugs. Send address. Dr. J. B. Stokes, Mohawk, Fla.

CROTALARIA SPECTABILIS — Seed for sale. New crop, well cured, bright and clean. Price 25c per pound in 100 pound lots and over, 30c per pound in less quantities, f. o. b. Hastings, Bunnell, Lowell and San Antonio, Florida. F. M. LEONARD & COMPANY, Hastings, Florida.

SCENIC HIGHWAY NURSERIES has a large stock of early and late grapefruit and oranges. One, two and three year buds. This nursery has been operated since 1883 by G. H. Gibbons, Waverly, Fla.

RAISE PIGEONS — Profit and pleasure. Illustrated descriptive catalogue postage six cents. Vrana Farms Box 314a, Clayton, Missouri.

ORANGE PACKERS ATTENTION — Two chemical transparent flexible orange containers for sale; royalty or licensee basis. Patent pending. Dr. C. V. Berry, 251 West 11th Street, New York City.

PUREBRED PULLETS FOR SALE — White Leghorns and Anconas ready to ship. Barred Rocks and R. I. Reds shortly. Several hundred yearling White Leghorn hens now laying 70%. Write or wire for prices. C. A. Norman, Dr. 1440, Knoxville, Tenn.

LAREDO SOY BEANS, considered free from nematode, excellent for hay and soil improvement. Write the Baldwin County Seed Growers Association, Loxley, Alabama, for prices.

**WANTED—RESIDENT
SOLICITORS**

to contact Grape Fruit & Orange packers & shippers, for one of the oldest receivers and Auction Specialists in New York. Address "C.B." P. O. Box 415, Tampa, Florida.

May, 1932

HARDY AUSTRALIAN PINE (Casuarina Cunninghamiana) — Best windbreak; border and avenue trees, rapid growth, invaluable for landscaping estates, parks, etc. Guaranteed true strain 20, 25 and 30c each. Quantity discount ten percent. May is good month for planting. Griffing Nurseries, Biscayne Park, Miami, Fla.

WANTED — To hear from owner of land for sale. O. Hawley, Baldwin, Wis.

SATSUMA BUDWOOD from Bearing Trees. Hills Fruit Farm, Panama City, Fla.

WANTED — To hear from owner having good farm for sale. Cash price, particulars, John Black, Chippewa Falls, Wisconsin.

SEED — Rough lemon, sour orange, cleopatra. New crop from type true parent trees. Also thrifty seedlings. DeSoto Nurseries, DeSoto City, Florida.

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European Plan, Fireproof 300 Rooms With Baths

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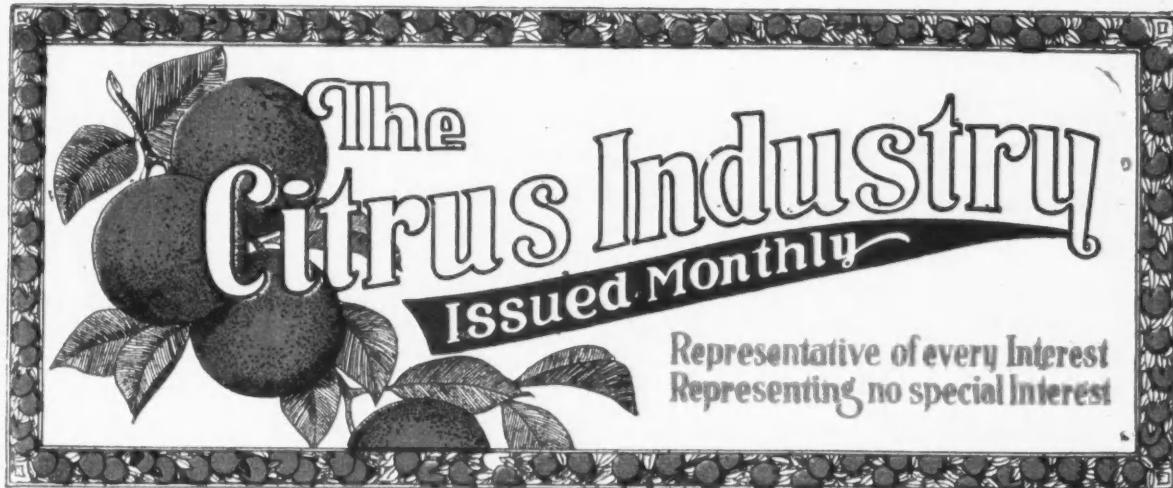
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Chas. B. Griner, Manager



Caters especially to the fathers and mothers, sons and daughters of the South. YOUR hotel—and THE hotel for your family. Absolutely Fireproof —Sensible Rates.

Spend your Summer vacation at Jacksonville Beaches



Vol. 13, No. 6

TAMPA, FLORIDA, JUNE, 1932

15 Cts. a Copy

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Presented In Florida's Only Exclusive
Citrus Magazine

— The Citrus Industry

By Some of the Best Known Citrus
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For Lasting Soil Energy *use* **GULF BRANDS of FERTILIZER**

Your soil needs more than the "shot in the arm" variety of fertilizer. Growing plants and trees demand nourishing food every day of the year.

Gulf Brands of Fertilizers contain those plant foods necessary for successful crop production. Of equal importance is the fact that the materials in GULF BRANDS are carefully combined and blended to insure lasting benefit.

{ Build for the future.
Insist on Gulf Brands
for your next application. }

**THE
GULF FERTILIZER
COMPANY**
TAMPA, FLORIDA

Lake Wales Bradenton Winter Garden
Winter Haven



Gulf Brands are
"Standard Brands"—Plus

To 1,000 pounds of FLORIDA PEAT HUMUS add 200 pounds of castor pumice or cotton seed meal, and obtain the equivalent of a PERFECT MANURE.

No Weed Seeds
No Grass Seeds
in our

FLORIDA PEAT HUMUS

The natural soil builder

FLORIDA
HUMUS CO.

Zellwood

Florida

Unsurpassed
for
Scale Control

Fico-60

The Florida-made oil emulsion
for Florida conditions.

Fico-20

A penetrating oil emulsion
—for cottony cushion scale,
mealy bug, and fuzzy white-
fly.

The memory of
quality remains
long after price
is forgotten.

FLORIDA
INSECTICIDE CO.

Apopka

Florida



GOOD during a dry spell BETTER when it rains - and BEST when you count your CITRUS PROFITS

GENUINE Peruvian Guano applied during the next few weeks will yield even BETTER results than if the drouth had continued. Now...when it is necessary to pump vitality and size into the crop already set on your trees...is the time to apply Genuine Peruvian Guano...or one of the Peruvianites.

Give your groves and fields Genuine Peruvian Guano and you can reasonably expect them to weather profitably any dry spell or extended rainy season.

Give them Genuine Peruvian Guano and rain and you can count on even better results...more fruit set, enlarged tree capacity.

Many growers regard the actual arrival of rains as the salvation of their crops, but users of Genuine Peruvian Guano and Peruvianite simply regard it as bringing even better results.

Genuine Peruvian Guano conditions the soil, implants beneficial bacteria and releases its energies as needed by plants and trees over a long period. That's why Genuine Peruvian Guano is a GOOD "all-weather" fertilizer...it bridges ordinary rainless periods and withstands continued rainy weather.



*There's a
Peruvianite
Analysis
for every
grove need!*

• • • • • A TIMELY W A R N I N G

The greatly increased demand for Genuine Peruvian Guano has exhausted local stocks.

We are now drawing on reserve supplies in Northern ports...hence this timely warning that the immediate supply is limited...first come, first served.

Avoid disappointment by placing an order today for your requirements of Genuine Peruvian Guano.

NITRATE AGENCIES COMPANY
1401 - 1407 LYNCH BUILDING
JACKSONVILLE - FLORIDA

